

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION APPLICATION PROCESSING AND CALCULATIONS	PAGE 1	PAGES 6
	APPL. NO. 528442,5 Em ICEs	DATE 12/08/11
	PROCESSOR MFN	REVIEWER

PERMIT TO CONSTRUCT ANALYSIS

FACILITY MAILING ADDRESS

California Steel Industries
14000 San Bernardino Avenue
Fontana, California 92335

(ID: 046268 NOx RECLAIM Cycle 1 – Title V)

EQUIPMENT LOCATION

SAME AS ABOVE

EQUIPMENT DESCRIPTION

APPLICATION NO. 528442 - PERMIT TO CONSTRUCT

PROCESS 2: INTERNAL COMBUSTION ENGINES

INTERNAL COMBUSTION ENGINE, D235, EMERGENCY, CATERPILLAR, MODEL NO. 3512C DITA, TWELVE CYLINDERS, FOUR CYCLE, TURBOCHARGED/AFTERCOOLED, 2206 BHP, DRIVING AN EMERGENCY GENERATOR.

APPLICATION NO. 528445 - PERMIT TO CONSTRUCT

PROCESS 2: INTERNAL COMBUSTION ENGINES

INTERNAL COMBUSTION ENGINE, D236, EMERGENCY, CATERPILLAR, MODEL NO. C15, SERIAL NO. FTE00523, SIX CYLINDERS, FOUR CYCLE, TURBOCHARGED/AFTERCOOLED, 619 BHP, WITH A DIESEL PARTICULATE FILTER, DRIVING AN EMERGENCY GENERATOR.

APPLICATION NO. 528447 - FACILITY PERMIT REVISION

BACKGROUND

Application Nos. 528442 and 528445 were filed on October 20, 2011, for Class I Permits to Operate. Application No. 528447 was filed on October 20, 2011, for a RECLAIM/Title V facility permit modification.

Complaints

There were no complaints credited to this facility for the past two years.

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Notice to Comply

D03247, 11/19/09 to demonstrate compliance with Rule 2012, Appendix A, Chapter 2(B) and the attached compliance advisory for all CEMS at the facility.

Subsequent inspection found applicant in compliance.

Notice of Violation

P57359, 6/21/11 for failing to transmit daily emission reports for D133 on 6/26/10, 8/27/10 and 8/28/10. Failed to report monthly mass emissions electronically for large sources. Failed to conduct RATA for device D81 within 6 months of end of calendar quarter.

Applicant has been in compliance with electronic reporting since last inspection on 5/24/11.

DISCUSSION

Our Rule 1470 was adopted on April 2, 2004 to implement the Airborne Toxic Control Measures (ATCM) from the California Air Resources Board (CARB). On May 19, 2011, CARB's amendment to the ATCM for stationary engines became effective. The current ATCM removes the Tier 4 emission limit standard for all engine sizes and establishes a PM emission limit of 0.15gr/bhp-hr for all engine sizes.

Rule 1470 currently requires that IC Engines 175 HP or greater meet Tier 4 emission standards on and after January 1, 2011. We, the AQMD are currently in the process of amending R1470 to incorporate all of the amendments to the ATCM for stationary engines except for PM. Our proposed amendment includes requiring a CARB certified diesel particulate filter (DPF) for new diesel engines.

Mohsen Nazemi, Deputy Executive Officer of Engineering and Compliance sent guidance through an e-mail dated May 25, 2011 @10:09 am on how to process emergency diesel engines during the this time of influx. He has guided us to process all new diesel emergency IC engines with conditions requiring a DPF and Tier 4 ATCM standards. Because of the pending amendment to R1470, the AQMD has a group Order of Abatement (at no cost to facilities) to allow facilities to construct and operate an emergency engine without meeting Tier 4 ATCM standards.

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PROCESS DESCRIPTION

California Steel Industries, Inc. (CSI) is a steel rolling mill that produces hot rolled, cold rolled, pickled and oiled and galvanized steel products, they also produce electric resistance welded pipe.

The 2206 BHP Emergency Electrical Generator (EEG) will be used to power Cooling Tower #15 in the Wastewater Pretreatment Plant (WWPT) during power outages and emergencies. Cooling Tower #15 supplies chilled water to both reheat furnaces, device ID D133 and D202.

The 619 BHP EEG will be used to power the Heat Recovery Steam Generator (HRSG) to Reheat Furnace #5, device ID D202. The emergency power will protect the HRSG in the event of power loss by powering the controls, cooling fans and dampers.

EVALUATION

Operating Schedule: 1 hr/day, 1 day/wk, 50 wks/yr
(District Default Usage for Emergency Engines)

System Manufacturer: Caterpillar

D235 – EEG for Cooling Tower #15

Model No.: 3512C DITA
Rating: 2206 BHp
Fuel: Diesel
Fuel Usage Rate: 104.8 gal/hr

D236 – EEG for Heat Recovery Steam Generator for Reheat Furnace #5

Model No.: C15
Rating: 619 BHp
Fuel: Diesel
Fuel Usage Rate: 31.86 gal/hr

$$R1 \text{ (lb/hr)} = \frac{\text{hp} \times \text{gr/bhp-hr}}{454 \text{ gr/lb}} \quad \text{NOx, CO, PM and ROG}$$

$$PM_{10} = 0.96 PM_{\text{diesel}}$$

$$R1 \text{ (lb/hr)} = EF \times \text{Fuel Usage} \quad \text{SOx}$$

Per Table 1 of Rule 2002 titled RELCAIM NOx Emission Factors, NOx emission factor for an ICE is the equivalent to the permitted BACT limit.

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$$\text{NOx}_{\text{RECLAIM}} = \frac{(3.74 \text{ gr/bhp-hr}) \times (2206 \text{ bhp})}{(454 \text{ gr/lb})} = 18.17 \text{ lb/hr} \quad (\text{D235})$$

$$\text{NOx}_{\text{RECLAIM}} = \frac{(2.63 \text{ gr/bhp-hr}) \times (619 \text{ bhp})}{(454 \text{ gr/lb})} = 3.58 \text{ lb/hr} \quad (\text{D236})$$

D235 – EEG Cooling Tower #15

Pollutant	Emission factor, R1* g/bhp-hr	Emission factor, R2^ g/bhp-hr	BACT/ R1470^^ Limit g/bhp-hr	BACT compliance	Emission rate lb/hr	Daily emission lb/day	30Day Avg
NOx	3.74	3.74	0.5	No	18.17	18.17	2.52
CO	0.79	0.158	2.6	Yes	0.7677	0.77	0.11
ROG	0.59	0.177	0.3	Yes	0.8600	0.86	0.12
PM ₁₀	0.084	0.0126	0.07	Yes	0.0612	0.06	0.01
SOx**	7.1	7.1	Clean Fuel	Yes	0.744	0.74	0.10

* R1 NOx, CO, ROG and PM₁₀ emission factors are taken from the certification application (A/N 449987) for this AQMD certified engine

** SOx emission factor is District Default for 4 Stroke, Rich-Burn Engines and in lb/1000 gal.

^ R2 assumes the minimum reduction per the DPF design parameters as certified by CARB (PM₁₀ 85%, CO 80%, & ROG 70%).

^^ BACT from Tier 4 Limits per current R1470 requirements.

D236 – EEG HRSG

Pollutant	Emission factor, R1* g/bhp-hr	Emission factor, R2^ g/bhp-hr	BACT/ R1470^^ Limit g/bhp-hr	BACT compliance	Emission rate lb/hr R2	Daily emission lb/day R2	30Day Avg
NOx	2.63	2.63	1.5	No	3.5858	3.59	0.498
CO	2.06	0.412	2.6	Yes	0.5617	0.56	0.078
ROG	0.14	0.042	0.14	Yes	0.0572	0.06	0.008
PM ₁₀	0.086	0.0129	0.07	Yes	0.01688	0.02	0.002
SOx**	7.1	7.1	Clean Fuel	Yes	0.2262	0.23	0.03

* R1 NOx, CO, ROG and PM₁₀ emission factors are taken from the certification application (A/N 452052) for this AQMD certified engine.

** SOx emission factor is District Default for 4 Stroke, Rich-Burn Engines and in lb/1000 gal.

^ R2 emission factors assume minimum DPF efficiencies as verified by California Air Resource Board (PM₁₀ 85%, CO 80% and ROG 70%)

^^ BACT from Tier 4 Limits per current R1470 requirements.

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RULES COMPLIANCE

RULE 212 Public Notification

Paragraph 212 (c)(1) Requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school. According to the website geodistance.com the closest school, Live Oak Elementary School is over 1 mile from California Steel Industries' property line. A 30-Day Public Notice is not required under this paragraph.

Paragraph 212(c)(2) The equipment will not result in on-site emission increase exceeding the daily maximums as specified in the table in Rule 212(g). Therefore, a 30-day public notice period will not be required under this paragraph.

Paragraph 212(c)(3) Public notice will not be required under this paragraph. See Rule 1401 evaluation section.

RULE 401 Compliance is expected. Visible emissions are not expected with proper maintenance and operation of this equipment.

RULE 402 Compliance is expected. Operation of this equipment is not expected to cause a nuisance.

RULE 404 Engine is in compliance with this rule. Per table 404(a), the allowable PM concentration at 11060 scfm is 0.073 gr/scf

$$PM = \frac{0.000584 \text{ lb/hr} \times 7000 \text{ gr/lb}}{11060 \text{ scfm} \times 60 \text{ min/hr}} = 6.1 \times 10^{-6} \text{ gr/scf}$$

RULE 431.2 Diesel fuel purchased is required to have a sulfur content less than 15 ppmv. Compliance is expected.

RULE 1110.2 Engine is exempt per section (h)(2) of this rule.

REG XIII The engines are currently not in compliance with NOx **BACT**, see table above. However, they are expected to be in compliance once R1470 is amended. The applicant has requested entry in the Group Order of Abatement. Both engines are in compliance with the previous Tier's Limits. Emergency engines are exempt from **Modeling** and **Offsets** per R1304 (a)(4).

RULE 1401 Exempt per section (g)(1)(F) of this rule.

RULE 1470 This facility is expected to be in compliance with this rule. It is over a mile from the nearest school and Diesel PM is expected to be below 0.01 g/bhp-hr.

RULE 1472 No three Emergency Diesel Engines at this location are within 150 meters of one another. Rule 1472 does not apply.

REG XX California Steel is in NOx RECLAIM, NOx emissions are offset by CSI's available NOx RTC's.

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REG XXX This is a de minimus significant permit revision. EPA 45-day review is required.

RECOMMENDATION

Issue Permit to Construct as described in this report and facility permit after the end of the 45-day EPA review period.